Report of the ECF Sub-Committee on Teacher Demand and Supply

December 2001

NOVA SCOTIA Department of Education

PO Box 578
Halifax, Nova Scotia
B3J 2S9

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Our File Number:

December 20, 2001

Mr. Dennis Cochrane
Deputy Minister of Education
P.O. Box 578
Halifax, N.S.
B3J 2S9

Dear Mr. Cochrane:

We are pleased to submit the *Report of the ECF Sub-Committee on Teacher Demand and Supply*. Our report contains recommendations to increase the supply of teachers in Nova Scotia in certain subject and specialty areas and to provide for a continuing supply of substitute teachers.

Yours very truly,

Department of Education

Wayne Doggett, Department of Education

Shannon Delbridge, Department of Education

Brent Woodbury, Department of Education

School Boards

Frank Barteaux, Nova Scotia School Boards Association

Alan Lowe, Halifax Regional School Board

Allan MacDougall, Chignecto-Central Regional School Board

Beth MacIsaac, Cape Breton-Victoria Regional School Board

Terry Donovan, Strait Regional School Board

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Guy LeBlanc, Conseil Scolaire Acadien Provincial

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Nova Scotia Teachers Union

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Universities

Robert Berard, Mount Saint Vincent University

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Introduction

In January 2000, the Department of Education released a Research Paper entitled *"Nova Scotia Public Education Teacher Demand and Supply"* which examined the Nova Scotia public education teacher labour market for regular (probationary, permanent, term) and substitute teachers, and provided projections over the ensuing ten-year period. Subsequently, a Review Committee produced a report drawing on the work of the Research Paper and other sources.

In June 2001, the Department of Education, with the assistance of a consultant, undertook to update this research and augment the data with information on the experiences of officials in school boards and schools. The update, entitled "*Nova Scotia Public Education Teacher Demand and Supply Research Paper - 2001 Update*" highlights the significant changes that occurred in the two years since the Research Paper was produced, and provides a revised assessment of the issues and of the outlook for public education teacher demand and supply to 2009-10. The *2001 Update* is based on the most current data relating to the Nova Scotia labour market for teachers, and on recent surveys respectively of school board human resource officials regarding difficulties hiring qualified teachers, and of school principals about the availability of qualified substitute teachers.

In the winter and spring of 2001, the Education Consultative Forum (ECF) discussed the issue of teacher demand and supply, and established a sub-committee which was mandated to examine updated statistical information on the teacher demand and supply situation in Nova Scotia; review existing recommendations, e.g. Report of Teacher Demand and Supply Committee; and make recommendations to the Education Consultative Forum to address teacher demand and supply issues in Nova Scotia. Membership included representation from the Department of Education, school boards, the Nova Scotia School Boards Association, the Nova Scotia Teachers Union and university faculties of Education.

The ECF Sub-committee on Teacher Demand and Supply met four times (October 16, November 2, November 7 and December 4) to review the updated data, to discuss the findings and prepare its report. This Sub-committee Report, which should be considered in conjunction with the *Nova Scotia Public Education Teacher Demand and Supply Research Paper - 2001 Update*, represents the findings and recommendations of the Sub-committee.

The Sub-committee Report is organized in such a way as to provide the reader with an overview of the activities and process undertaken, provide a summary of the key research findings, and share elements of the discussion leading to the Sub-committee's recommendations. The recommendations are reproduced in full at the back of the Report for ease of reference. For more detailed information on the research findings, consult the *Nova Scotia Public Education Teacher Demand and Supply Research Paper - 2001 Update*. The Executive Summary of *The Update* report is provided in Appendix 1 of this Report.

Research Findings

The research findings presented in this section are drawn from the *Nova Scotia Public Education Teacher Demand and Supply Research Paper - 2001 Update*, hereinafter referred to as *The Update*. For further detail regarding research data and analysis, please refer to the full document.

The Update report provides information on the current situation in Nova Scotia, projected demand and supply of regular (probationary, permanent and term teachers) and substitute teachers to 2009-10. The report also projects the demand and supply of regular teachers by subject/specialty area.

First, the report looks at the status of teachers in 2000-01. During this year, there were 12,121 active teachers in Nova Scotia (i.e. worked at least one day during the school year). Of these, 8,700 were permanent or probationary, 1,163 were term and 2,258 were substitute teachers.

New demand for teachers is based on the number of teachers leaving the system because of retirements; other attrition, such as occupational mobility, disability pensions and death; and adjustments due to the declining enrolment of students. Over the next nine years, 36.8% (3,630) of regular teachers are projected to retire. Other attrition accounts for 170 teachers per year: 20 are assumed to go on disability pension each year, 10 are assumed to die, and 140 are assumed to leave due to occupational mobility (i.e. to teach elsewhere or leave the teaching profession).

Enrolments are projected to decline 16.1% over the forecast period, however it is assumed that the decline in teachers will be 10%. The proportionately smaller decrease in the number of teachers recognizes that there is a limit that schools can continue to be consolidated in response to declining enrolments.

Overall, new demand for teachers is projected to range from a low of 275 in 2002-03, to a high of 609 in 2006-07.

New supply is based on the number of Nova Scotia graduates from Nova Scotia institutions, and the number of new teacher certificates issued each year to individuals trained outside of the province. New supply is estimated to be 520 per year: 300 from Nova Scotia institutions and 220 trained elsewhere.

Comparing new demand with new supply, supply is expected to exceed demand from 2002-03 to 2004-05 and in 2009-10. New demand is expected to exceed new supply from 2005-06 to 2008-09.

The Update report also includes an analysis of new demand and new supply of regular teachers by subject and specialty areas. Projections indicate that there will be shortages in the following subject/specialty areas: Mathematics, General and Other Sciences, Technology Education, Family Studies, Administration and Special Education/Resource. Shortages could also occur in Physics, Chemistry, Physical Education, Speech Therapy and Guidance, where the numbers being forecast are relatively small. Small changes in the factors contributing to the analysis of these subject areas could result in either a surplus or a shortage of teachers, but given the overall labour market conditions for teachers, it is probable that a shortage will result without interventions.

The Update report also notes that there are immediate and increasing difficulties in obtaining teachers fluent in French who are able to teach at CSAP and in French immersion programs, especially in Science and Mathematics.

The substitute pool plays an important role in the regular teacher labour market. The table in Appendix 4 shows the dynamics between the regular teacher and substitute teacher labour market. It is assumed that the new supply of teachers goes into the substitute pool and the new demand for regular teachers comes from this pool. Attrition of substitute teachers also plays a factor in the availability of substitute teachers. It is assumed that the attrition rate of substitute teachers will decline over the forecast period as the labour market tightens and the utilization rate of substitute teachers increases and their probability of obtaining a regular teaching position increases. The attrition rates are estimated to decrease from a high of 23% in 2002-03, to a low of 5% by 2006-07. Given the above, the substitute workforce is projected to decrease from 1,993 at the beginning of 2002-03, to 810 at the start of the 2009-10 school year.

The Sub-committee used the findings in *The Update* report, along with the results of the two surveys, and their own experience in the field as a basis for their recommendations.

Discussion and Recommendations

Based on an analysis of subject/specialty data which compared teacher retirements and other attrition factors to the academic major of the new graduates being certified to teach in Nova Scotia, shortages were identified in particular subject and specialty areas. In addition, some of these subject areas were considered to be at-risk of shortage due to their special circumstances or current situations. Further information was gleaned from a survey of Human Resource Directors in each of the boards regarding hiring difficulties in the various subject areas. For further data on labour market imbalances in subject/specialty areas, see Appendix 2 and 3.

Shortages are already being reported for French First Language and French Second Language. It is expected that there will be shortages in the areas of Mathematics, Physics, Chemistry, Technology Education, and Family Studies. Other areas where shortages are anticipated include special education/resource, speech therapy, school psychology, and elementary school teachers.

Recommendation 1. Address shortages in the supply of teachers in specific subject areas
The first set of recommendations are designed to respond to shortages in specific subject areas. Each of these areas require different interventions due to their unique circumstances and barriers to increasing teacher supply.

The subjects of Math, Physics and Chemistry require focussed efforts to encourage undergraduate students with these backgrounds to consider the teaching profession. As such, the following is recommended:

1.1 Mathematics

1.1.1 Increase new annual supply by 30, for a total annual supply of 40 beginning September 2004.

1.2 Physics

1.2.1 Increase new annual supply by 10, for a total annual supply of 15 beginning September 2004.

1.3 Chemistry

1.3.1 Increase new annual supply by 9, for a total annual supply of 15 beginning September 2004.

1.4 To address shortages in Mathematics, Physics and Chemistry:

1.4.1 Undertake marketing efforts focussed on 3rd and 4th year Bachelor of Science students, with a major in Mathematics, Physics or Chemistry, to encourage entrance into a B.Ed program. Offer tuition reimbursement, for their B.Ed tuition only, for those who graduate from a B.Ed program in Nova Scotia based on time spent teaching in Nova Scotia in area of major, up to a period of four years.

1.4.2 Offer currently-enrolled B.Ed students in Nova Scotia universities with majors in Math, Physics or Chemistry, full tuition reimbursement, for their B.Ed tuition only, with agreement to work in Nova Scotia for four years.

A shortage of teachers for Technology Education is anticipated; however, due to the unique and evolving nature of this area, a range of backgrounds is appropriate to prepare teachers for this field. Therefore, the interventions to increase supply require a more broad-based approach which includes not only encouraging prospective teachers to consider this field but also providing retraining and professional development opportunities for existing teachers. As well, curriculum expectations need to be more clearly defined, taking into account the varying levels of technology available in our schools.

1.5 Technology Education

1.5.1 Increase new annual supply by 16, for a total annual supply of 20 beginning September 2004.

1.5.2 The Department should define curriculum expectations for Technology Education. The curriculum needs to be revised, beginning with junior high, recognizing the qualifications of teachers and the current infrastructure limitations of schools. This work should be done in conjunction with school boards and the university that has been given this mandate.

1.5.3 A variety of backgrounds are appropriate for teachers in this area. Early recruitment efforts should be undertaken to attract undergraduates with Math, Science and Technology backgrounds to consider a profession in teaching.

1.5.4 Summer institutes should be provided to ensure current teachers are equipped to make the transition from the old industrial arts model to the new integrated learning approach to Technology Education. Often, interest and opportunity play a major role in filling teacher positions in Technology Education, and these professional development opportunities would assist in ensuring curriculum expectations are met.

There is a projected shortage of Family Studies teachers; however, to ensure a productive effort to increase supply, collaborative work needs to be undertaken to review the curriculum for this subject area. Specifically the curriculum for Personal Development and Relationships (PDR), Career and Life Management (CLM) and Physically-active Lifestyles (PAL) should be reviewed. The highly structured nature of certain degree programs, such as the Bachelor of Applied Arts (Family Studies and Gerontology) at Mount Saint Vincent University, can make it very difficult for students to meet the content requirements for secondary level certification. This may hinder the supply of teachers for Family Studies. Therefore the following recommendations are offered:

1.6 Family Studies

1.6.1 Increase new annual supply by 7, for a total annual supply of 10 beginning September 2004.

1.6.2 The Department should consider reviewing the curriculum and outcomes of PDR, CLM, PAL and Family Studies.

1.6.3 The Department should engage in a consultation process with education partners to examine the Family Studies curriculum, the role of Family Studies in the PSP, and a mechanism to recruit teachers into this subject area.

1.6.4 Consideration should be given to reviewing the necessity for a minor at the secondary level for Family Studies majors.

School boards are already experiencing difficulties in finding teachers who are fluent in French to teach a number of subjects in French speaking schools and for French Second Language programs. Given the chronic underutilization of enrolment capacity at the Université Sainte-Anne, initiatives to increase supply in this area must involve creative efforts such as joint activities with other institutions, marketing efforts to increase the number of students who are or could be fluent in French when they enter teacher education programs, and more aggressive marketing efforts in Nova Scotia and other parts of Canada. Therefore the following is recommended:

1.7 French First Language and Second Language Instruction

1.7.1 Increase new annual supply to the capacity of Université Sainte-Anne. Currently 20 students per year graduate from the Université Sainte-Anne teacher education program, while they have a capacity of 85 students per year. Factors contributing to the under-enrolment at Université Sainte-Anne should be examined.

1.7.2 Direct CONSUP to consider joint efforts with other universities or utilize Collège de l'Acadie sites, with qualified professors, to deliver part of the Université Sainte-Anne teacher education program.

1.7.3 Undertake concentrated marketing efforts in CSAP, and in immersion programs in Anglophone schools, through guidance services and curriculum focussed on career exploration, to encourage French language students to consider a career in teaching.

1.7.4 Offer currently-enrolled students in the Université Sainte-Anne B.Ed. program full tuition reimbursement if they agree to work in French First Language or French Second Language programs in Nova Scotia for four years.

1.7.5 School boards should undertake early recruitment efforts at Université Sainte-Anne, as well as at Université de Moncton and universities in Québec and Ontario. (also see recommendation 4.1)

Elementary teachers are expected to be in a shortage situation for the second part of the decade, therefore the recommendation would focus on outcomes during that time period.

1.8 Elementary

1.8.1 Increase new annual supply by 28, for a total annual supply of 248 beginning September 2005.

While the aforementioned recommendations address particular subject area shortages, the Sub-committee recognizes that increased marketing efforts are required to bolster general interest among high school and undergraduate students to increase the number of prospective teachers. Overall, the supply of teachers is expected to exceed demand from 2002-03 to 2004-05 and in

2009-10. However, new demand is expected to exceed new supply from 2005-06 to 2008-09. This shortage situation requires focussed attention to increase the number of individuals entering the teaching profession.

The following recommendations are designed to target these market segments to increase the general supply of teachers in Nova Scotia:

1.9 General efforts to increase teacher supply

1.9.1 Undertake marketing efforts focussed on high school students in grades 11 and 12 - consider venues such as guidance services and curriculum focussed on career exploration to encourage students to consider a career in teaching.

1.9.2 The Department should work with media to inform parents and students about specific areas of teacher shortage and oversupply to encourage students to consider the teaching profession and to promote the teaching profession as an excellent career opportunity.

1.9.3 Focus particular efforts on high school students with an aptitude for the subject shortage areas. For example, undertake marketing efforts during science fairs to encourage students to pursue teaching with a major in Math, Physics, Chemistry or Technology Education.

1.9.4 In order to ensure diversity in the teaching population, marketing efforts should be undertaken to encourage students from the African Nova Scotian and Aboriginal communities to consider teaching as a profession.

1.9.5 Provide enhanced career counselling to university students interested in becoming teachers.

1.9.6 Prepare information packages to be provided to Directors of Admission in universities to be used during career fairs, as well as by the Registrar of Teacher Certification for marketing activities.

1.9.7 Provide information sessions to university students interested in becoming teachers (involving the Department, school boards and the NSTU). Approach university faculties of education to access opportunities to speak with students about opportunities in the teaching profession.

1.9.8 Investigate the feasibility of a "come back to Nova Scotia strategy" coupled with an offer of employment for particular subject specialties.

1.9.9 Consideration should be given to revising the rate of remuneration for those teachers who hold a Bridging Teacher's Certificate.

1.9.10 Direct the Minister's Advisory Committee on Teacher Certification to consider options to retrain teachers with qualifications in excess supply in areas of their academic minors - use summer schools, a portion of available sabbaticals, and training allowances to support retraining efforts. For example, provide appropriate training to secondary teachers who want to teach at the elementary level.

1.9.11 To assist in addressing the overall shortage in regular teachers that will occur between 2005-06 and 2008-09, and to help address existing shortages in certain subject areas, it is proposed that an alternative time frame be provided for mature students wanting to change their professions and enter the teaching field. The current requirements (60 credit hours including practicum) would remain in effect but students would have the option of completing these requirements in a time frame that would be shorter than 24 months. Candidates that have backgrounds in subject areas where shortages exist and are forecast to continue would be given preference. This option would provide mature students with the opportunity to become qualified without sacrificing two years of foregone income.

1.9.12 To assist in addressing the overall shortage in regular teachers that will occur between 2005-06 and 2008-09, and to help address existing shortages in certain subject areas, it is recommended that the enrolment corridor for education students at English instruction institutions be increased by 100, from 335 to 435, immediately. The increase in the corridor should be appropriately assigned to those universities that have been designated to provide a specific type of education, e.g. Family Studies and Technology Education. The other subject areas should also be assigned with the very clear intention that faculties of education will only increase their enrolments in those areas identified (see Appendix 5 for details).

Recommendation 2. Address shortages in student support services and administration

Shortages were also identified in the provision of administrative services and in the provision of student support services, specifically speech therapy/school psychology and special education/resource. There are various types of training initiatives underway in both of these areas but work needs to be undertaken to determine the extent of training and if further expansion of current or new programming is required. Of particular concern is the availability of speech therapy/school psychology and special education/resource support in rural areas.

2.1 Speech Therapy/School Psychology

2.1.1 Undertake early recruitment efforts at Dalhousie University (Speech Therapy) and Mount Saint Vincent University (School Psychology).

2.1.2 Determine the various training efforts underway and consider the necessity to expand the enrolment corridor at Dalhousie and Mount Saint Vincent universities.

2.1.3 Consider incentives for those destined for the education field such as tuition reimbursement, in exchange for an employment commitment.

2.1.4 In view of the difficulties school boards are having in attracting qualified candidates, the methods of obtaining this service should be revisited.

2.2 Special Education/Resource

2.2.1 Examine the broader capacity of universities to deliver education in this area to ensure a regular annual supply to meet the needs of the education system.

2.2.2 Examine retraining opportunities for current teachers in the areas of special education and resource.

Administration

Although the data in Appendix 3 shows that there is a projected shortage in the future supply of administrators, i.e. new supply of 18 per year and projected demand between 48 and 72 per year, a number of initiatives are currently underway to address the training needs of administrators. School boards have made ad hoc arrangements with local universities to provide administrative training to their employees. Acadia currently has 20 teachers enrolled in its Leadership and School Development program. Mount Saint Vincent has 44 teachers enrolled in its Master of Education Curriculum/Leadership program. All school boards utilize the various modules offered by the Nova Scotia Leadership Consortium, which currently has over 1,000 teachers enrolled. Because of the ad hoc nature of this training and the diversity of training across the province, the Sub-committee recommends that:

2.3 Administration

2.3.1 The NSSBA, in conjunction with other education partners, should review and coordinate various training efforts underway to ensure an organized and steady flow of supply.

Recommendation 3. Substitute Teachers

Particular attention was paid to the availability of substitute teachers, and a survey of principals was undertaken to gather more information on the current situation. As noted earlier, the substitute pool plays an important role in the regular teacher labour market as it is assumed that the new supply of teachers goes into the substitute pool and the new demand for regular teachers is met from this pool.

The high attrition of substitutes coupled with increased usage in the system, creates a higher demand. As the labour market tightens and there is an increased demand for teachers at the same level of supply, the substitute pool begins to shrink. In 2000-01, 2,258 substitute teachers were utilized by school boards. Unless there is an intervention, the number of substitute teachers that will be available to teach is forecasted to shrink to approximately 800 by the end of the decade.

General concerns arising from the analysis of the data, results from the survey of principals, and the experiences of Sub-committee members led to a variety of recommendations regarding substitute teaching. It was noted that the current processes for arriving at a substitute list and for contacting substitute teachers vary across school boards. A first step is to have the most effective province-wide system possible for registering and contacting substitute teachers.

3.1 Process for Obtaining Substitutes

3.1.1 Implement an electronic system with a province-wide approach.

A range of other issues involving substitute teachers were considered, including distances they travel to provide their services, their remuneration, access to professional development opportunities and the recruitment of substitute teachers. The Sub-committee puts forward the following recommendations to address these issues:

3.2 Availability of Substitutes

3.2.1 Consider the adequacy of the daily substitute rate.

3.2.2 Consider a travel allowance for substitutes if travel distance exceeds 50 kms.

3.2.3 Review strategies around scheduling professional development to reduce peak demand for substitutes.

3.2.4 Consider mechanisms and opportunities for enhancing the professional development of substitutes.

3.2.5 School boards could actively recruit substitute teachers from the ranks of holders of Teacher's Certificates who are not teaching (e.g. by advertising for their applications for substitute teaching, holding local school substitute teacher job fairs, contacting all teachers who retired in past 5 years to determine interest, etc.).

One of the issues identified both in *The Update* report and by the Sub-Committee, is that recent graduates entering the school system through substitute teaching currently have a low probability of obtaining a probationary or term contract. This results in these individuals leaving substitute teaching in Nova Scotia for teaching positions elsewhere in Canada and abroad. Another issue is that in those subject areas where shortages currently exist or are forecasted for the future, school boards are reporting difficulties in obtaining substitute teachers. Using the 'full-time substitute' concept, school boards could, for example, hire recent B. Ed. graduates with a major in Mathematics, utilizing them as substitutes and then hiring them into regular teaching positions as they become available.

In 2000-01, 40% (or 905) of the substitute teachers worked 64 or more days during the year. To provide opportunities for new graduates and to provide schools boards with a guaranteed supply of substitute teachers, one-quarter of these teachers could be put into the full-time substitute teaching pool.

3.3 Full-Time Substitute Teaching Pool

3.3.1 The Department of Education should direct school boards to set up 226 teachers in a full-time substitute teacher pool on an annual contract (see Appendix 6 for details by school board).

3.3.2 School boards are already utilizing substitute teachers. The Department should fund the difference in costs currently incurred by the school boards and the costs of employing these teachers on a full-time basis.

3.3.3 The utilization and effectiveness of the full-time substitute pool, and the impact of the pool on substitute attrition, should be evaluated annually to ensure that the pool is being utilized as intended.

Sub-committee members felt that a more in-depth analysis of the substitute pool would provide important information about substitute teachers' intentions, aspirations and circumstances regarding employment in Nova Scotia.

3.4 Survey of Substitute Teachers

3.4.1 A survey of substitute teachers should be conducted as soon as possible to determine their career aspirations and other information that would provide a better understanding of their circumstances and the substitute teacher labour market.

Recommendation 4. Address difficulties associated with recruitment, retention and attrition

As noted above, a general shortage of teachers is expected by the mid-decade and the substitute pool is shrinking. Issues related to recruitment, retention and attrition were discussed at length by the Sub-committee. Nova Scotia school boards must be in a position to compete and offer positions to Nova Scotian graduates earlier. The analysis leads to the conclusion that if teachers are given full-time employment, they tend to stay in the province. As such, the following recommendations are put forward:

4.1 Improve ability to recruit new teachers

4.1.1 Enable earlier hiring of teachers, by authorizing school boards to annually hire up to the same number of regular teachers that they had in the current school year minus the number of teaching positions that would be lost due to enrolment declines. The NSTU and the Department need to engage in discussions regarding the necessary changes to the provincial placement process to enable this to occur.

4.1.2 The Department and NSTU should engage in discussions on moving the deadline for teacher resignations so as to accommodate school boards' planning for the next school year.

4.1.3 The Department and NSTU should engage in discussions on the impact that long term disability provisions have on the ability of school boards to offer probationary and permanent contracts.

4.1.4 Discuss improvements that the Department and school boards could make to ensure that the teacher certification process can be undertaken in a timely way, particularly for those studying out-of-province and for teachers certified in other provinces.

Recommendation 5. Monitoring and Measuring Progress

Finally, the Sub-committee recommends that the Department continue to monitor the teacher demand and supply situation biennially to ensure continued progress toward a balanced labour market.

5.1	The Department of Education, in conjunction with education partners, needs to continue to improve data collection and to report on the teacher demand and supply situation biennially to ensure continued progress toward a balanced labour market.

Urban/Rural

Members of the Sub-committee indicated that it is more difficult to obtain teachers, particularly in certain subject areas, the greater the distance from metropolitan centres. The problem is exacerbated for schools that are considered as being in remote locations. The same issue was raised in relation to finding substitute teachers in rural versus urban areas. It was noted that these problems are even more pronounced for education support services, such as speech therapy and school psychology.

The Sub-committee discussed various approaches, but did not reach a consensus on specific recommendations to address the problem of attracting regular teachers to more remote rural areas. However, it was felt that the ability to offer a probationary/permanent contract rather than a term contract would help. Recommendations elsewhere in the report should be helpful in this regard. In the case of substitute teachers, the 'full-time substitute pool' recommendation and the '50 km' recommendation would assist with the problems being experienced.

Concluding Comments

The ECF Sub-committee feels that *The Update* and this Report reflect the current teacher demand and supply situation in Nova Scotia. The members encourage government to provide an effective response to these recommendations.

Teacher shortages will exist in the Nova Scotia public education if focussed and meaningful action is not taken. Shortages will exist in particular subject and specialty areas, in fact the surveys undertaken have highlighted that difficulties are already being experienced by human resource directors and principals. This will be substantially exacerbated over the next few years as retirements occur. While it is generally recognized that forecasting labour market demand and supply allows for some margin of error due to the many contributing factors, it is clear that Nova Scotia will be impacted by a shortage of teachers, far beyond that which can be addressed by anticipated enrolment declines.

The recommendations in this Report focus on specific measures to increase the supply in specific areas where shortages exist are or forecast to occur, identify incremental initiatives that are required to increase overall supply, address the increasingly difficult task of finding and hiring qualified substitutes, and outline the key areas where further examination is required.

The recommendations identify specific policy actions required to address these shortages. The issues should be addressed quickly as it requires at least two years lead time to adequately prepare a teacher. In total, an increase in the annual enrolment corridor at university faculties of education of 100 seats is recommended (see Appendix 5 for details). Creating and filling these seats with students from diverse programs requires the participation and support of all parties involved: the Department of Education, school boards, school boards association, the teacher's union and university faculties of education.

The marketing efforts proposed in the Report will make an impact in the longer term, however, the incentives to encourage undergraduates to enter the Bachelor of Education program should be implemented in the upcoming academic year before shortages impinge on our ability to deliver public education to Nova Scotia students.

The school boards, the Nova Scotia School Boards Association, the Nova Scotia Teachers Union and university faculties of education are poised to take on the challenge and will work with government to undertake measures to ensure an adequate supply of well-qualified teaching professionals are available to meet the needs of Nova Scotian students.

Thank you for the opportunity to provide advice on the teacher demand and supply situation in Nova Scotia.

Recommendations in Full

Recommendation1. Address shortages in the supply of teachers in specific subject areas

1.1 Mathematics

1.1.1 Increase new annual supply by 30, for a total annual supply of 40 beginning September 2004.

1.2 Physics

1.2.1 Increase new annual supply by 10, for a total annual supply of 15 beginning September 2004.

1.3 Chemistry

1.3.1 Increase new annual supply by 9, for a total annual supply of 15 beginning September 2004.

1.4 To address shortages in Math, Physics and Chemistry:

1.4.1 Undertake marketing efforts focussed on 3rd and 4th year Bachelor of Science students, with a major in Mathematics, Physics or Chemistry, to encourage entrance into a B.Ed program. Offer tuition reimbursement, for their B.Ed. tuition only, for those who graduate from a B.Ed program in Nova Scotia based on time spent teaching in Nova Scotia in area of major, up to a period of four years.

1.4.2 Offer currently-enrolled B.Ed students in Nova Scotia universities with major in Math, Physics or Chemistry, full tuition reimbursement, for the B.Ed. tuition only, with agreement to work in Nova Scotia for four years.

1.5 Technology Education

1.5.1 Increase new annual supply by 16, for a total annual supply of 20 beginning September 2004.

1.5.2 The Department should define curriculum expectations for Technology Education. The curriculum needs to be revised, beginning with junior high, recognizing the qualifications of teachers and the current infrastructure limitations of schools. This work should be done in conjunction with school boards and the university that has been given this mandate.

1.5.3 A variety of backgrounds are appropriate for teachers in this area. Early recruitment efforts should be undertaken to attract undergraduates with Math, Science and Technology backgrounds to consider a profession in teaching.

1.5.4 Summer institutes should be provided to ensure current teachers are equipped to make the transition from the old industrial arts model to the new integrated learning approach to Technology Education. Often, interest and opportunity play a major role in filling teacher positions in Technology Education, and these professional development opportunities would assist in ensuring curriculum expectations are met.

1.6 Family Studies

1.6.1 Increase new annual supply by 7, for a total annual supply of 10 beginning September 2004.

1.6.2 The Department should consider reviewing the curriculum and outcomes of PDR, CLM, PAL and Family Studies.

1.6.3 The Department should engage in a consultation process with education partners to examine the Family Studies curriculum, the role of Family Studies in the PSP, and a mechanism to recruit teachers into this subject area.

1.6.4 Consideration should be given to reviewing the necessity for a minor at the secondary level for Family Studies majors.

1.7 French First Language and Second Language Instruction

1.7.1 Increase new annual supply to the capacity of Université Sainte-Anne. Currently 20 students per year graduate from the Université Sainte-Anne's teacher education program, while they have a capacity of 85 students per year. Factors contributing to the under-enrolment at Université Sainte-Anne should be examined.

1.7.2 Direct CONSUP to consider joint efforts with other universities or utilize Collège de l'Acadie sites, with qualified professors, to deliver part of the Université Sainte-Anne teacher education program.

1.7.3 Undertake concentrated marketing efforts in CSAP, and in immersion programs in Anglophone schools, through guidance services and curriculum focussed on career exploration, to encourage French language students to consider a career in teaching.

1.7.4 Offer currently-enrolled students in the Université Sainte-Anne B.Ed. program full tuition reimbursement if they agree to work in French First Language, French Immersion or French Second Language programs in Nova Scotia for four years.

1.7.5 School boards should undertake early recruitment efforts at Université Sainte-Anne, as well as at Université de Moncton and universities in Québec and Ontario (also see recommendation 4.1).

1.8 Elementary

1.8.1 Increase new annual supply by 28, for a total annual supply of 248 beginning September 2005.

1.9 General efforts to increase teacher supply

1.9.1 Undertake marketing efforts focussed on high school students in grades 11 and 12 - consider venues such as guidance services and curriculum focussed on career exploration to encourage students to consider a career in teaching.

1.9.2 The Department should work with media to inform parents and students about specific areas of teacher shortage and oversupply to encourage students to consider the teaching profession and to promote the teaching profession as an excellent career opportunity.

1.9.3 Focus particular efforts on high school students with an aptitude for the subject shortage areas. For example, undertake marketing efforts during science fairs to encourage students to pursue teaching with a major in Math, Physics, Chemistry or Technology Education.

1.9.4 In order to ensure diversity in the teaching population, marketing efforts should be undertaken to encourage students from the African Nova Scotian and Aboriginal communities to consider teaching as a profession.

1.9.5 Provide enhanced career counselling to university students interested in becoming teachers.

1.9.6 Prepare information packages to be provided to Directors of Admission in universities to be used during career fairs, as well as by the Registrar of Teacher Certification for marketing activities.

1.9.7 Provide information sessions to university students interested in becoming teachers (involving the Department, school boards and the NSTU). Approach university faculties of education to access opportunities to speak with students about opportunities in the teaching profession.

1.9.8 Investigate the feasibility of a "come back to Nova Scotia strategy" coupled with an offer of employment for particular subject specialties.

1.9.9 Consideration should be given to revising the rate of remuneration for those teachers who hold a Bridging Teacher's Certificate.

1.9.10 Direct the Minister's Advisory Committee on Teacher Certification to consider options to retrain teachers with qualifications in excess supply in areas of their academic minors - use summer schools, a portion of available sabbaticals, and training allowances to support retraining efforts. For example, provide appropriate training to secondary teachers who want to teach at the elementary level.

1.9.11 To assist in addressing the overall shortage in regular teachers that will occur between 2005-06 and 2008-09, and to help address existing shortages in certain subject areas, it is proposed that an alternative time frame be provided for mature students wanting to change their professions and enter the teaching field. The current requirements (60 credit hours including practicum) would remain in effect but students would have the option of completing these requirements in a time frame that would be shorter than 24 months. Candidates that have backgrounds in subject areas where shortages exist and are forecast to continue would be given preference. This option would provide mature students with the opportunity to become qualified without sacrificing two years of foregone income.

1.9.12 To assist in addressing the overall shortage in regular teachers that will occur between 2005-06 and 2008-09, and to help address existing shortages in certain subject areas, it is recommended that the enrolment corridor for education students at English instruction institutions be increased by 100, from 335 to 435, immediately. The increase in the corridor should be appropriately assigned to those universities that have been designated to provide a specific type of education, e.g. Family Studies and Technology Education. The other subject areas should also be assigned with the very clear intention that faculties of education will only increase their enrolments to those areas identified (see Appendix 5 for details).

Recommendation 2. Address shortages in student support services and administration

2.1 Speech Therapy/School Psychology

2.1.1 Undertake early recruitment efforts at Dalhousie University (Speech Therapy) and Mount Saint Vincent University (School Psychology).

2.1.2 Determine the various training efforts underway and consider the necessity to expand the enrolment corridor at Dalhousie and Mount Saint Vincent universities.

2.1.3 Consider incentives for those destined for the education field, such as tuition reimbursement, in exchange for an employment commitment.

2.1.4 In view of the difficulties school boards are having in attracting qualified candidates, the methods of obtaining this service should be revisited.

2.2 Special Education/Resource

2.2.1 Examine the broader capacity of universities to deliver education in this area to ensure a regular annual supply to meet the needs of the education system.

2.2.2 Examine retraining opportunities for current teachers in the areas of special education and resource.

2.3 Administration

2.3.1 The NSSBA, in conjunction with other education partners, should review and coordinate various training efforts underway to ensure an organized and steady flow of supply.

Recommendation 3. Substitute Teachers

3.1 Process for Obtaining Substitutes

3.1.1 Implement an electronic system with a province-wide approach.

3.2 Availability of Substitutes

3.2.1 Consider the adequacy of the daily substitute rate.

3.2.2 Consider a travel allowance for substitutes if travel distance exceeds 50 kms.

3.2.3 Review strategies to scheduling professional development to reduce peak demand for substitutes.

3.2.4 Consider mechanisms and opportunities for enhancing the professional development of substitutes.

3.2.5 School boards could actively recruit substitute teachers from the ranks of holders of Teacher's Certificates who are not teaching (e.g. by advertising for their applications for substitute teaching, holding local school substitute teacher job fairs, contacting all teachers who retired in past 5 years to determine interest, etc.).

3.3 Full-Time Substitute Teaching Pool

3.3.1 The Department of Education should direct the school boards to set up 226 teachers in a full-time substitute teacher pool on an annual contract (see Appendix 6 for details by school board).

3.3.2 School boards are already utilizing substitute teachers. The Department should fund the difference in costs currently incurred by the school boards and the additional costs of employing these teachers on a full-time basis.

3.3.3 The utilization and effectiveness of the full-time substitute pool, and the impact of the pool on substitute attrition, should be evaluated annually to ensure that the pool is being utilized as intended.

3.4 Survey of Substitute Teachers

3.4.1 A survey of substitute teachers should be conducted as soon as possible to determine their career aspirations and other information that would provide a better understanding of their circumstances and the substitute teacher labour market.

Recommendation 4. Address difficulties associated with recruitment, retention and attrition

4.1 Improve ability to recruit new teachers

4.1.1 Enable earlier hiring of teachers, by authorizing school boards to hire up to the same number of regular teachers that they had in the current school year minus the number of teaching positions that would be lost due to enrolment declines. The NSTU and the Department need to engage in discussions regarding the necessary changes to the provincial placement process to enable this to occur.

4.1.2 The Department and the NSTU should engage in discussions on moving the deadline for teacher resignations so as to accommodate school boards' planning for the next school year.

4.1.3 The Department and the NSTU should engage in discussions on the impact that long term disability provisions have on the ability of school boards to offer probationary and permanent contracts.

4.1.4. Discuss improvements that the Department and school boards could make to ensure that the teacher certification process can be undertaken in a timely way, particularly for those studying out-of-province and for teachers certified in other provinces.

Recommendation 5. Monitoring and Measuring Progress

5.1 The Department of Education, in conjunction with education partners, needs to continue to improve data collection and to report on teacher demand and supply situation biennially to ensure continued progress toward a balanced labour market.

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APPENDIX 1
Executive Summary of the
Nova Scotia Public Education Teacher Demand and Supply Research Paper - 2001 Update

Background and Purpose of the Study

This study updates the Research Paper, *"Nova Scotia Public Education Teacher Demand and Supply"*, of the Nova Scotia Department of Education, published in January 2000, that examined the Nova Scotia public education teacher labour market for regular (probationary / permanent, term) and substitute teachers, and projected teacher demand and supply to 2009-10. This *Update* highlights the significant changes that occurred in the two years since the Research Paper was produced, and provides a revised assessment of the issues and of the outlook for public education teacher demand and supply. The *Update* is based on the most current data relating to the Nova Scotia labour market for teachers, a survey of school board human resource officials regarding difficulties hiring qualified teachers, and a survey of school principals about the availability of qualified substitute teachers.

In 2000-01, Nova Scotia public education had 155,873 students (80,418 elementary, 27,130 junior high, 38,325 high school) and 12,121 teachers (probationary / permanent 8,700, term 1,163, substitute 2,258).

Demand and Supply of Teachers in Other Jurisdictions

The Update also reviews the demand and supply situation for teachers elsewhere in Canada and the United States:

- Despite a continuing oversupply of teachers in Canada there is evidence of concern amongst school board and school officials that there will be increasing difficulty in finding qualified regular teachers. Further, greater attention is being paid to an apparently growing problem, at least in some regions, in hiring substitute teachers.

- The United States generally has an ample supply of teachers, but there are significant shortages in certain subjects (e.g. Mathematics, Physics, Chemistry, Bilingual Education, Computer Science, and Special Education) and in impoverished urban and rural regions.

Demand for Teachers in Nova Scotia

The employment of regular teachers (i.e. probationary / permanent and term), measured in full-time equivalents, in Nova Scotia public education is projected to decline by 948, or 10.0%, between school years 2000-01 and 2009-10, in response to a 16.1% decrease in student enrolments. The only segment that appears not to be declining are programs as a group where French is the language of instruction, in 2000-01 having 12.5% of total enrolment.

Even though employment is declining, there is a projected net demand for 4,212 new teachers between 2001-02 and 2009-10 to partially replace regular teachers who:

- retire - totalling an estimated 3,630, or 39.0% of current regular teachers,

- leave public education due to occupational mobility, primarily by term teachers, - estimated at 1,260, or 13.3% of current regular teachers, and

- disability and death - estimated at 270, or 2.8% of current regular teachers.

The demand for new teachers by year is shown below. Until 2003-04, demand is suppressed due to the aftermath of the Early Retirement Program in 1994 to 1998 which advanced the retirement of teachers who would otherwise retire in this period.

Demand for Teachers

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
260	275	401	493	528	609	575	564	506

New Supply of Teachers in Nova Scotia

The new supply of teachers (i.e. qualified new entrants in Nova Scotia public education who are likely to seek teaching positions in the Province), is estimated to average 520 per year through 2009-10. Annual supply consists of 300 Nova Scotians graduating from teacher education programs in the Province, and approximately 220 teachers, mostly from Nova Scotia, trained in other jurisdictions. Although there are about 350 graduates per year from Nova Scotia teacher education programs, this analysis assumes that graduates with an out-of-province address will not teach in Nova Scotia, and therefore are not included in the new supply numbers.

The supply of teachers from Nova Scotia teacher education programs has been reduced in recent years due to a Provincially-mandated reorganization, initiated in 1994, that placed a

limit of 420 on the annual number of graduates. English instruction programs are fully subscribed, graduating 350 in the year 2001, but the French instruction program is operating at a quarter of its authorization of 85, graduating only 21 in 2001. Reorganization also upgraded teacher education programs, now taking two years to complete instead of one, with the result that fewer non-Nova Scotians are currently enrolled in Nova Scotia teacher education programs. Given the capacity constraint, the longer programs have effectively increased the number of graduates who are most likely to seek employment in Nova Scotia.

Assuming that the new supply of teachers can be effectively utilized in the future, then a supply of 520 teachers per year would be sufficient to meet projected demand until 2004-05. There would be a shortage of up to 89 teachers per year in 2005-06 through 2008-09, and the supply should be adequate in 2009-10.

School boards in Nova Scotia report increasing difficulty hiring qualified teachers to meet their specific needs. In many instances, the subjects in demand by Nova Scotia school boards are the same as those being the most intensely recruited by school boards from other jurisdictions. The subjects that are most difficult for Nova Scotia school boards to recruit are: Mathematics, Other Sciences, Physical Education, Fine Arts, Technology Education, Family Studies, Secondary Other Subjects, Special Education Resource, Special Education Other, and Elementary Other. In addition school boards indicated significant difficulty finding qualified teachers for French First and Second Languages.

When recruiting teachers from Nova Scotia teacher education programs the seven school boards in Nova Scotia are at a disadvantage compared to boards from other provinces and the United States because:

- school boards often cannot make offers to new teachers until August, or later, for the school year starting in September due to a compounding of delays involving:

    - uncertainty of funding until the Provincial budget is approved in April or May, sometimes later,

    - time needed for regional and province-wide placement of permanent teachers whose positions are eliminated from lack of funding, and

    - time needed for school board internal competitions to fill teaching vacancies by existing teachers.

- school boards are currently offering new teachers mostly term positions that are vulnerable to not being renewed, and therefore, are less attractive than permanent positions offered by school boards from other jurisdictions. Of the 373 new regular teachers who were hired in 2000-01, only 30 were probationary and the remainder were term. School boards are not in a position to offer many permanent positions to

new teachers because of the lower number of regular teachers retiring, continuing reductions in the number of funded teaching positions, a desire of school boards to provide available permanent positions to existing long-time term teachers, and a nominal number of permanent positions bound to teachers on disability pension.

The majority of the supply of new teachers in Nova Scotia are able to find work only as substitute teachers, who have a very high attrition rate from Nova Scotia public education. On average over the previous six years, attrition of substitute teachers was comparable to 90% of the new supply. A major factor in new teachers not being able to obtain regular positions has been, and continues to be, that many new teachers do not have the appropriate undergraduate major or minor fields of study to qualify them to teach the subjects needed.

Imbalances of Demand and Supply

If the current pattern of new supply of teachers by undergraduate major (and minor), continues there will continue to be significant imbalances between demand and supply for teachers in the following junior high and high school subjects:

Outlook for Significant Junior and Senior High School Teacher Imbalances

Subject	Annual Supply	Annual Demand 2001-02 through 2004-05	Annual Demand 2005-06 through 2009-10
Oversupply			
English	80	22	36
Social Studies	90	17	26
Biology	41	3	5
Shortage			
Mathematics	10	18	30
Technology Education	4	10	11

Because of their small numbers of new supply and demand there is a risk of future 'thin market' shortages of teachers in the junior and senior high school subjects of Physics, Chemistry, General and Other Science, Fine Arts, and Family Studies.

The outlook for elementary grade teachers is for an annual new supply of 218, which will result in an average annual surplus of 69 in 2001-02 through 2004-05, but an average annual shortage of 16 in 2005-06 through 2009-10.

Among student support services, there will be a substantial shortage of Special Education / Resource Teachers. Also, there is an existing shortage of Speech Therapists and Testing Services teachers; these are thin market segments and supply may not catch up to demand.

A separate analysis was not possible for imbalances of teachers who speak French in order to deliver their subject. Enrolments and the need for teachers where French is the language of instruction is growing, but recruiting teachers who are qualified in their respective subjects is made more difficult by the additional requirement that they also be fluent in French.

Substitute Teacher Labour Market

School principals in all regions of Nova Scotia note an increasing difficulty finding qualified substitute teachers. Province-wide, nearly 42% of the schools reported that they often cannot find qualified substitute teachers for their subjects in 2000-01. This problem is worse in rural and isolated regions where it is frequently too costly for substitute teachers to travel to the schools.

The requirement for substitute teachers is seasonal, 50% higher in May than September. It is especially difficult to find enough qualified teachers at times of system-wide professional development days while school is in session.

In 2000-01, substitute teacher input to Nova Scotia public education totaled 695 teacher full-time equivalents. This figure has been climbing slowly over the years; in 1994-95, it was 550 full-time equivalents.

In 2000-01 there were 2,258 active substitute teachers in Nova Scotia. This number has essentially been unchanged for the previous 6 years. On average substitute teachers taught 60 days in 2000-01. Their income from substitute teaching, based on a per diem salary of $114 to $140 per day, would average $6,840 per year, which is inadequate by itself to sustain a minimal standard of living.

The probability of substitute teachers becoming regular teachers is low. For example, of the substitute teachers active in 1998-99, by 2000-01 only 6.9% had obtained probationary / permanent positions and 16.4% had obtained term positions.

Between 1999-00 and 2000-01, the substitute teacher attrition rate from Nova Scotia public education was 27% (636 individuals), which is in-line with previous years. The primary reasons for attrition are low earnings from substitute teaching and limited prospects for regular teacher employment.

Integrated View of Regular and Substitute Teacher Demand and Supply

The linkage between regular and substitute teacher workforce components is that many new teachers start their careers as substitutes with the intention and incentive of becoming full-time teachers.

Efficient functioning of both the regular and substitute teacher labour market components will rely on policy changes that:

- allow school boards to be more effective recruiters of new teachers,

- align the major / minor undergraduate fields of study of new teachers with the subject profile of teachers demanded, and

- provide a way for substitute teachers to increase their earnings by being utilized more effectively.

The outlook of a model integrating the dynamics of the regular and substitute teacher workforces suggests that the size of the effective substitute teacher pool will decline from 2,238 in 2002-03 to 824 in 2009-10. This would not likely be sufficient to meet the demand for substitute teachers in peak periods, and would not be adequate to cover a 10% absentee rate of regular teachers. Under these conditions, an increase in the supply of teachers by targeted growth of teacher education programs in Nova Scotia would be warranted. The increase, however, should not be so large that it triggers an increase in attrition, which would be counterproductive.

APPENDIX 2
SECONDARY AND ELEMENTARY SUPPLY & PROJECTED DEMAND BY SUBJECT

	Initial Teaching Certificates Issued in 2000 by Undergraduate:		Projected Average Annual Demand	
	Major	Minor	2001-02 through 2004-05	2005-06 through 2009-10
SECONDARY *	306	152	125	190
English	80	45	22	36
French**	22	15	6 *2 elem.*	9 *5 elem.*
Languages	4	3	<0.5	<0.5
Social Studies	90	54	17	26
Mathematics	10	5	18	30
Science	57	22	17	25
Biology Physics Chemistry General & Other Sciences	41 5 6 5	12 5 2 3	3 2 3 9	5 2 4 14
Physical Education**	16	2	6 *2 elem.*	8 *6 elem.*
Fine Arts	13	2	8 *3 elem.*	10 *5 elem.*
Music** Other	9 4	- -	3 *3 elem.* 5	4 *5 elem.* 6
Technology Education	4	2	10	11
Business Education	7	2	4	6
Personal Development/ Career Ed	NE***	NE***	5	6
Family Studies	3	1	5	7
ELEMENTARY	218	N/A+	149	234
TOTAL	524		274	424

Note: Numbers may not add to totals due to rounding.

* Secondary also includes teachers with assignments in both secondary and elementary grades.

** Demand for elementary level teachers with a major in this subject shown in italics.

*** NE: No Endorsation. +N/A: Not applicable.

APPENDIX 3
ADMINISTRATION AND STUDENT SUPPORT SERVICES SUPPLY AND PROJECTED DEMAND

	Supply in 2000	Projected Average Annual Demand	
		2001-02 through 2004-05	2005-06 through 2009-10
Administration	18	48	72
Education Support	13	4	7
Speech Therapy	7	4	6
Testing Services	5	<0.5	<0.5
Social Work	1	<0.5	1
Guidance	9	8	12
Special Education/Resource	4	23	41
TOTAL	43	83	132

APPENDIX 4
PROJECTED NOVA SCOTIA REGULAR AND SUBSTITUTE TEACHER WORKFORCE DYNAMICS

The table on the next page shows the dynamics between the regular and substitute teacher workforce in Nova Scotia. It assumes that the supply of new teachers go into the substitute pool and that the demand for regular teachers is filled from the substitute pool. It is also assumed that the attrition of substitute teachers decreases over time as the labour market tightens. To help the reader in interpreting the table the following explanation is provided for 2002-03.

- The demand for regular teachers in 2002-03 is 275: 171 due to retirements, 170 from other attrition, and there is a decrease of 66 in the number of teachers to adjust for declining enrolments.
- At the start of the year there are 1,993 teachers in the substitute pool.
- 520 new teachers receive their Initial Teacher's Certificate and are available to work, these are added to the substitute pool, increasing the substitute pool to 2,513.
- The demand of 275 teachers is taken from the pool, therefore reducing it to 2,238.
- Attrition of the substitute pool is assumed to be 23%, thus decreasing the substitute pool by 515.
- The substitute pool is 1,723 at the end of the year, and therefore there are 1,723 teachers available at the beginning of the next school year.
- It is assumed that the minimum number of substitute teachers required is equal to 10% of the regular teachers, in 2002-03 this is estimated to be 924.
- Therefore, 41.3% of the effective teacher pool (924 of the 2,238) will be utilized during the year.
- 10.9% of the total teachers available, i.e. 275 of the 2,513, will obtain a regular teacher position during the year.

PROJECTED NOVA SCOTIA REGULAR AND SUBSTITUTE TEACHER WORKFORCE (FTE) DYNAMICS

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Total
Regular Teacher Demand Components:									
Retirements	171	304	411	449	535	520	534	473	3,397
Other Attrition	170	170	170	170	170	170	170	170	1,360
Change in Teachers Employed	-66	-73	-88	-91	-96	-115	-140	-137	-805
Total Regular Teacher Demand	**275**	**401**	**493**	**528**	**609**	**575**	**564**	**506**	**3,952**
Teachers Available to Meet Demand for Regular Teachers									
Beginning Substitute Teacher Pool	1,993	1,723	1,474	1,276	1,141	999	897	810	
New Teacher Supply	520	520	520	520	520	520	520	520	
Total Teachers Available	2,513	2,243	1,994	1,796	1,661	1,519	1,417	1,330	
Meet Regular Teacher Demand	-275	-401	-493	-528	-609	-575	-564	-506	
Effective Substitute Teacher Pool	2,238	1,842	1,501	1,268	1,052	944	853	824	
Attrition of Substitute Teachers	515	368	225	127	53	47	43	41	
Attrition Rate %	*23%*	*20%*	*15%*	*10%*	*5%*	*5%*	*5%*	*5%*	
Next-Year Beginning Substitute Pool	1,723	1,474	1,276	1,141	999	897	810	783	
Substitute Teacher Metrics									
Estimated Substitute Teacher Requirement at 10% of Regular Teachers	924	916	908	898	889	877	863	850	
Effective Substitute Teacher Capacity Utilization	41.3%	49.7%	60.5%	70.8%	84.5%	92.9%	101.2%	103.2%	
'Teachers Available' Probability for a Regular Teaching Position in current year	10.9%	17.9%	24.7%	29.4%	36.7%	37.9%	39.8%	38.0%	

Note: - FTE refers to Full-Time Equivalent
- numbers may not add to totals due to rounding

APPENDIX 5
PROPOSED INCREASES IN TEACHER EDUCATION CORRIDOR BY SUBJECT

Subject	Proposed Increase
Mathematics	30
Physics	10
Chemistry	9
Technology Education	16
Family Studies	7
Elementary	28
TOTAL	100

APPENDIX 6
PROPOSED SIZE OF FULL-TIME SUBSTITUTE POOL, BY BOARD

School Board	Number of Substitute Teachers - 2000-01	Proposed Full-Time Substitutes
Cape Breton-Victoria	347	32
Strait	203	19
Chignecto-Central	381	36
Halifax	790	74
Annapolis Valley	314	29
Southwest	275	26
Acadien provincial	112	10
Nova Scotia	2,258*	226

Notes:
In 2000-01, 2,258 teachers taught as substitute teachers at least one day. Note that some of these teachers taught in more than one board.

For purposes of this report, the number of teachers for the full-time substitute pool is based on one-quarter of those substitute teachers who worked 64 or more days during 2000-01.